

Raytheon Missile Systems
Special Temporary Authorization
File No: 0706-EX-ST-2011

Explanation of Need for STA and Description of Experiment

Raytheon Missile Systems (Raytheon) is a US defense contractor that develops innovative technologies that can be used by the military. Currently, Raytheon's innovation labs in Rancho Cucamonga, California have been working on the development of a new broadband technology. This STA is being filed for the short-term use of that technology for experimentation and demonstration purposes.

Why is an STA appropriate:

An STA is appropriate in this instance because the testing is expected to be of short duration – approximately two months. The program is seeking a license to fine-tune its experimental product and then to demonstrate the product to potential customers. The first demonstrations are scheduled to start in early December 2011, but the demonstration site is expected to be dismantled by the end of January, 2012.

Description of Experiment:

Currently, Raytheon is working on a new product that uses high bandwidth solid state W-band (92-94 GHz) technology, making it possible to deliver compact, secure communications systems with orders of magnitude reductions in size, weight and power.

Reducing the size, weight and power needed by broadband data links is essential when working in harsh climates. Traditional point to point technologies operating in this frequency band use large antennas that are buffeted by wind. The buffeting causes a significant drop in data rates, which leads to inefficient communications, lowering of available bandwidth, slowing of vital communications, and wasted power by the transmitters. This technology offers significant advances in power consumption, rapid deployment, and effective high-speed data transmissions under all conditions.

Until now, all developmental operations have taken place in an anechoic chamber. At this point, Raytheon needs FCC authorization to move its experimental technology out onto a radio test range to prove that it works at distances of up to 1 kilometer.

The purpose of the proposed test is to demonstrate the feasibility of using Raytheon's advanced, high-power, solid state W-band technology for communications applications. This test will include

measuring the performance of a prototype 320 Mbps, high frequency (91-93 GHz), static communication link at a separation of 1 km between the transmitters. The test will take place at the ITT Loop Canyon Antenna Test facility.

If there are any questions about this application or the proposed use of the spectrum, please contact Thomas J. Fagan, Spectrum Manager, Raytheon Missile Systems, 520-794-0227 or tjfagan@raytheon.com, or Anne Linton-Cortez, Washington Federal Strategies, 520-344-8525 or alc@conspecinternational.com.